

## Family Expressiveness and Children's Emotion Understanding

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**Abstract**

This study is to investigate the relation between family emotion expressiveness and child emotion understanding. Research has indicated that children with better emotion understanding show greater social competence, enhanced peer relations, and fewer problem behaviors (Cassidy, Parke, Butkovsky & Braungart, 1992; Castro, Halberstadt, Lozada & Craig, 2015). However, much of the previous research has relied on self-report, such as the Family Expressiveness Questionnaire (FEQ; Halberstadt, 1986), to assess family expressiveness, and most of this line of research has focused on mothers' emotion expressiveness. The goal of this study is to further the understanding of the impact of family expressiveness (both fathers' and mothers' emotion expressiveness) on children's ability to recognize emotion expressions. Additionally this study examines whether there are differences in mothers' and fathers' expressiveness and whether the relation between parents' expressiveness and child emotion understanding varies by child gender. Participants were 61 families drawn from a larger, longitudinal study; these families have been recruited from central Ohio, have children between the ages of 3 and 3.5 years. The daily conversations within the family were collected using an iPod Touch. The recordings were coded for family expressiveness. To assess emotion understanding, children were asked to recognize basic emotion expressions (happy, sad, angry, scared, and neutral) in the laboratory setting. The proposed study can deepen our understanding on how family expressiveness based on naturalistic observation predicts children's emotion understanding.

### **Family Expressiveness and Children's Emotion Understanding**

Parental emotional expressivity has been defined as “parent’s pattern or style of nonverbal and verbal expression within the family context” (Liew, Johnson, Smith & Thoemmes 2011. P. 553). Family expressiveness refers to the intensity and frequency of parents’ positive and negative expressions among family members including children (Ramsden & Hubbard, 2002). Parents’ emotion expressions expose children to a range of emotions so that children learn to understand and interpret one’s own and other people’s feelings (Eisenberg, Cumberland & Spinrad, 1998, Martin, Williamson, Kurtz-Nelson & Boekamp, 2015). Children since infancy are able to use facial expression as a clue to evaluate the situation (Eisenberg et al, 1998; Camras & Allison, 1985). The development of emotion understanding continues into the preschool years. It has been found that 3-year-olds can identify basic facial expressions accurately (Székely et al., 2011). Children’s ability to understand emotion is associated with many optimal outcomes such as better peer relations and enhanced social competence as well as fewer internalizing and externalizing behavioral problems (Cassidy, Parke, Butkovsky & Braungart, 1992, Castro, Halberstadt, Lozada & Craig, 2015). In addition, children with better understanding of emotion exhibit more prosocial behaviors (Castro et al., 2015). Additionally, lacking skills to recognize and understand emotion has been related to future mental health issues (Székely et al., 2011).

The heuristic model proposed by Eisenberg and colleagues (Eisenberg et al., 1998) serves as theoretical foundation for the current study. The model suggests that child characteristics, parent characteristics, and contextual factors would impact emotion-related parenting practices, such as emotional expressiveness. In addition, children’s emotion understanding as one of outcomes results from parents’ emotional expressiveness. This model also suggests that children’s understanding of emotion could be differentially related to child gender. In this study,

child and parent gender will be focused as factors that might moderate the association between family expressiveness and children's emotional understanding, especially children's emotion recognition.

Another conceptual model that is utilized is Emotion Understanding in Recognition and Knowledge Abilities (EUREKA) (Castro, Cheng, Halberstadt, & Gruhn, 2015). This model suggests that emotion understanding entails two components, emotion recognition and emotion knowledge. Emotion recognition skills include awareness of emotions that are expressed and labeling (non)prototypical expressions. Emotion knowledge skills embrace understanding of internal and external causes of emotions and impacts as well as purposes of emotions. This study addresses emotion recognition component in the model.

Empirical findings from research of emotion understanding support the notion that emotion-related conversations with parents enhance children's emotion understanding (Denham, Zoller, & Couchoud, 1994; Martin & Green, 2005). It is also well established that parents' modeling of well-modulated and well-explained negative emotions is beneficial for children to develop complex emotion schemas (Dunsmore & Halberstadt, 1997; Denham, & Kochanoff, 2002; McClure, 2000). Also, for young children, overall levels of family expressiveness, or global family expressiveness, is positively related to emotion understanding (Halberstadt & Eaton, 2002).

However, there have been mixed findings on the association between family expressiveness and children's emotion understanding when valence and specific contexts of family expressiveness are considered. For instance, whereas some research has shown that parents' increased positive emotion expressiveness is correlated with children's improved understanding of emotion including emotion labeling skills (Nelson, Brien, Calkins, Leerkes,

Marcovitch & Blankson, 2012; Halberstadt et al., 1999), a meta-analysis (Halberstadt et al., 2002) revealed no relations between positive family expressiveness and children's increased understanding of emotion. For negative emotion expression, Halberstadt and colleagues found that only negative expressiveness such as crying is correlated to children's emotion understanding negatively (Halberstadt et al., 2002). Some studies also have shown that negative expressiveness such as anger can harm children's emotion understanding (Dunn & Brown, 1994; Denham et al, 2002; Eisenberg et al., 1998). Additionally, the findings are inconsistent regarding whether mothers' emotion discourse predicts children's identification of emotion expressions. Whereas Denham and colleagues (Denham et al., 1994) found an association between mothers' increased emotion discourse and children's enhanced ability to recognize emotion expression, Martin and others (Martin & Green, 2005) did not find the same results in their study.

Several factors can be attributed to the inconsistent findings in the previous research. The conceptualization and measurement of family expressiveness vary widely. For example, Denham and others (Denham et al., 1994) focused on both mothers' emotional word use and behavioral manifestations of emotion such as "cry" or "laugh" whereas Martin and her colleagues (Martin & Green, 2005) only included auditory part of speech such as total emotion explanation and total emotion words that were expressed by mothers. These results from different measurements of family expressiveness suggest that consideration of emotion expression from mothers may be necessary for children to accurately recognize emotions. In addition, merely verbalizing emotion may be insufficient for teaching children emotion recognition skills. Similarly, Denham and colleagues (1992) found a negative association between maternal verbal explanation of facial photograph and children's emotion labelling ability. In this lab observation, experimenters recorded mothers' emotion language used with children, but they did not examine the effect of

maternal emotion expression during the conversation on children's emotion labeling. What is more, while some researchers separate the constructs of emotion recognition and emotion knowledge (e.g., Martin & Green, 2005; Montiroso, Peverelli, Frigerio, Crespi, Borgatti, 2010), others (e.g., Halberstadt et al., 2002) combined these constructs into an overarching concept of emotion understanding. It is possible that family expressiveness may be associated with some but not all aspects of children's emotion understanding.

It is critical for parent to provide certain amount of instruction in socializing emotions. The significance of socialization factor from family is also addressed in studies on preschoolers' emotion understanding (e.g., Denham & Couchoud, 1990). Researchers state that adults in general display happy expression most often and fear less often, which might explain why young children have difficulty in recognizing fear compared to recognizing happy expression. The lower frequency of displaying negative emotions like fear from adult can possibly be explained by adults' maturation, cognitive development and further socialization (Izard, 2007). In addition, Denman and colleagues found that to some extent, children tend to recognize positive emotion, sadness, anger, and fear in corresponding sequence in situation-based emotion recognition and emotion expressions recognition. (Denham & Couchoud, 1990). Izard (2007) also states that even though feelings of sadness and/or anger do not need to be taught to preschoolers, negative emotions typically become relatively uncommon in social settings. Furthermore Denham and her colleagues (Denham & Couchoud, 1990) suggest that the emotions that are referred more frequently might be more readily added to child's emotion lexicon, which is necessary for accuracy of children's emotion labeling. Hence, it is critical to view both verbal expression, and emotion expressions that are exhibited from parents when considering familial factors in children's emotion recognition.

Despite the recent advancement in theories and empirical research, several important issues regarding family expressiveness and child emotion understanding remain poorly understood. First, little empirical research has considered the role of fathers' expressiveness in children's emotional understanding. Much of the research in this area has focused primarily on mothers. For instance, studies have showed that maternal negative emotion expression, especially mothers' anger is associated with children's low score in emotion understanding task (e.g., Denham, et al., 1994). With increased involvement of fathers in childrearing during the recent years (Marshall, 2006; Roger et al., 2012), there is a crucial need to understand fathers' influence on children's emotional development. Limited research has shown that fathers' emotion socialization has more salient impact on children than that of mothers' (Foster, Reese-Weber, & Kahn, 2007). Foster and colleagues (2007) has suggested that compared to mothers' expressiveness, fathers' expressiveness, especially negative expressiveness better predicted children's development of socioemotional competence.

Second, little is known about the differential effects of mothers and fathers on children's emotion understanding. Previous research (LaBounty, Wellman, Olson, Lagattuta, & Liu, 2008) that assessed children's emotion understanding within the family context found that while mothers' use of total emotion words predicted children's overall score in emotion understanding, fathers' references to cause of emotion was partially predictive of children's emotion understanding even though mothers are still major emotion socializing agents for children. (LaBounty et al., 2008). This indicates that fathers' presence and interactions with children are essential for children's emotion understanding. However, there is little understanding about the role of fathers in children's emotion recognition. A divergence model also suggests that it may be beneficial for the development of emotion understanding, as differences between parents in

emotional expressiveness may provide children with enhanced emotional experiences (McElwain, Halberstadt, & Volling, 2007; Dunsmore et al., 1997). However, there were problems that the study did not address. In LaBounty et al. (2008), parents' references to emotion was assessed within a structured picture-book task, during which parent-child conversations might be limited to the content of the book. Parental references to emotion assessed in such structured tasks may be different from daily conversations occurring in naturalistic settings. It has been suggested that different conversational tasks including naturalistic assessments would show different relationships to children's emotion understanding (Raikes & Thompson, 2006; Laible, 2004b; Haden & Fivush, 1996). For example, in Laible (2004b), it has been shown that whereas mothers' focus on negative emotions in a story-book reading task is associated with children's emotion understanding negatively, mothers' talk focusing on negative emotion while discussing past events with children is conducive for children's emotion understanding. Therefore, it is imperative to consider contextual variations while assessing parents' references to emotion (Haden & Fivush, 1996). In addition, LaBounty and colleagues' study did not separate the constructs of emotion knowledge and emotion recognition. The study also did not assess family expressiveness.

Third, children's gender differences in the relations between family expressiveness and emotion understanding are not adequately addressed. Previous findings on gender differences in emotion understanding have been mixed. For example, Bosacki and Moore (2004) have found that girls had higher score than boys in story-related emotion labeling tasks. A possible explanation is that mothers used more emotion labels in emotion talk with daughters than with sons (Bosacki & Moore 2004; Martin & Green 2005). However, other studies showed no mean score differences between boys and girls in emotion understanding tasks when emotion



recognition and emotion knowledge were considered together (Montirosso et al., 2010, Martin & Green, 2005). Previous research (e.g., LaBounty et al., 2008) has found the familial predictor for children's overall emotion understanding ability. In addition, the ability of labeling facial expressions develops before children start to understand the specific cause of the emotion (Salmon et al., 2013). However, there is lack of predictive variables that explain children's facial expression labeling ability and other behavioral and situational emotion recognition specially. Hence, it is suggested that there is a need to scrutinize different emotion understanding tasks separately (Marin & Green, 2005). Moreover, child gender might also influence family expressiveness. For instance, mothers of girls reported more negative self-expressiveness in the family compared to mothers of boys (Wong et al., 2009). More parental modeling of negative expressiveness might facilitate girls better in understanding and interpreting all negative emotions compared to boys. In addition, it is known that parents encourage sadness and fear more often with daughters than with sons and respond to boys' anger more than to girls' (Montirosso, 2010). Hence, girls might have better ability to comprehend all of the emotions and to master emotion labeling skills compared to boys (Halberstadt et al., 2002). Parents' more frequent negative emotion modeling might lead to girls' better ability in interpreting all of the emotions, because parents' negative emotion modeling can potentially provoke an introspective approach to emotion for girls (Halberstadt et al., 2002). Cervantes and Callanan (1998) also found corroborating evidence that mothers had more explanations than labels in emotion talk to boys whereas girls received similar amounts of two categories from mothers. Indeed preschool girls express more negative emotion than boys (Chaplin, Cole & Zahn-Waxler, 2005; Chaplin & Aldao, 2013). What is more, both theory and research found that the capacities for emotion expressions and emotion recognition coevolved (Izard, 2007). If girls are more encouraged to

express negative emotions like sadness, it can be speculated that compared to boys, girls might have better ability to recognize negative emotions. Unlike the relatively low occurrence of negative emotions in social setting, universally positive emotion is triggered and discussed frequently to promote curiosity and knowledge acquisition (Izard, 2007).

Additionally, there are methodological limitations in studies of family expressiveness. Most of the previous studies relied primarily on self-report to assess the frequency of positive and negative emotions that are expressed within the family context (Ramsden & Hubbard, 2002). Other research examined mother-child dyad exclusively in a semi-structured conversation to investigate family emotional climate (Raikes & Thompson, 2006). In the limited studies where fathers' information was included, it was often reported by the mothers. Based on the self-report, it is known that in general females are more expressive than males; however, self-report may be biased due to sex-role stereotypes (Balswick, 1977). It has been suggested that naturalistic observation of maternal and paternal expressiveness might have resulted different findings (Nelson et al., 2012).

This study will fill the gaps in the literature by using naturalistic observations and examining mothers' and fathers' expressiveness toward boys and girls within the home environment. The first goal is to examine the differences between mothers and fathers in their emotion expressiveness toward children and whether parents' expressiveness towards children vary by child gender. Another goal of this study is to investigate in what ways mothers' and fathers' emotion expressiveness contributes differently to children's emotion understanding. The third goal is to understand whether family expressiveness from both parents impacts performance of boys and girls differently in their emotional understanding.

It is hypothesized that: 1) compared to fathers, mothers would be more expressive in positive and negative emotions (sadness and anger); 2) Children would show higher accuracy in recognizing positive emotion than negative emotions (sadness and anger); 3) Parents' expressiveness and child gender would predict children's accuracy in emotion recognition.

## **Method**

### **Participants**

Participants were 61 children (29 boys) and their families drawn from a larger, longitudinal study. These families have been recruited from central Ohio. Families are eligible if 1) they have a child between the ages of 3 and 3.5; 2) the mother of the child is at or older than 21 years of age. The mothers' age ranges from 21 to 47 ( $M = 31.87$ ,  $SD = 5.72$ ). The majority of the mothers were European-American (73.8%) and African-American (24.6%). Among all the participants, 59% mothers had at least a 4-year college degree, 8.2% of them had a high school degree or less; 44.9% fathers had at least a 4-year college degree and 17.4% had a high school degree or less. Family expressiveness was assessed at age 3 or 4 and children's emotion recognition assessed at age 5-6 was included.

### **Procedures and Measures**

At time 1, children wore a recording device (iPod Touch) for a "typical weekend day". The recording usually lasts for 9 hours in a day, typically between 8:30 am and 9:30 pm. The device recorded one minute per ten minutes. Mothers were asked to keep an interaction journal for their child, detailing what the child did and who was involved during each activity. The audio recordings were transcribed verbatim for the coding of parents' emotion expressiveness. In the current study, there were 16 missing fathers, some of whom were not present on the day of the recording and some of the families were single mother families. To adjust the frequency of

fathers' presence and mothers' presence, the number of parents' expressiveness was divided by the number of parents' presence respectively. At time 3 Children and mothers also participated in a laboratory visit during which children were administered Assessment of Children's Emotion Skills (ACES; Schultz & Izard, & Bear, 2004). Child scored 1 if he or she answered correctly, and scores 0 if the answer was wrong. In addition to recognizing 26 facial expressions, according to Schultz and other researchers' instruction (Schultz et al., 2004) in assessing children's emotion processing, children were also asked to recognize social behaviors, social situations. In response, children labeled the protagonist's feeling by choosing either happy, sad, mad, scared, or no feeling (Schultz et al., 2004). Mothers were asked to complete questionnaire regarding demographic characteristics in the lab as well. In this study, children's fear recognition was not addressed, because fear was the least frequent emotion expressed in home setting.

Mothers' and fathers' expressiveness in the home environment was coded for the frequency of behaviors that indicate positive and negative expressiveness, based on the audio recording from the iPod Touch device. Parents' positive expressiveness includes 1) *positive emotion expressions*, which include laughing, singing/whistling; 2) *positive evaluation of child*, that is parents' positive comments about child's behavior and thoughts (e.g., "you did a good job"); 3) *general positive statements*, that is parents' positive comments about an indirect target or person (e.g. "I like that TV show"); 4) *positive self-evaluation*, that is parents' positive evaluative statements about themselves (e.g., "I did a good job in making dinner tonight"); and 5) *love expressions* toward family members (e.g. "I love you." ). Parents' negative expressiveness includes 1) *negative emotion expressions*, which include sighing, crying, and yelling; 2) *negative evaluation of child*, meaning parents expressing negative comments about child's behavior and thoughts (e.g., "You are a slob"); 3) *general negative statements*, that is

parents' comments in a dissatisfied tone or negative comments about an indirect target or person.(e.g. "I knew this would happen."); 4) *negative self-evaluation*, that is parents' negative evaluative statements about themselves (e.g. "I cannot believe I did not know that.");5) *parental verbal aggression*, that is parents speaking in an aggressive way toward the child, such as insulting the child and storming out of the room.

### Results

Descriptive statistics (means, and standard deviations) and the bivariate correlations of all study variables are presented in Table 1. Mothers' negative expressiveness and child's total accuracy in sadness recognition was correlated ( $r = -0.37, p < 0.01$ ) and child's total accuracy in positive emotion recognition and child's total accuracy in anger recognition was correlated ( $r = 0.37, p < 0.01$ ). No other variables reached significance at the 0.01 or 0.05 level, however, fathers' negative expressiveness and child's total accuracy in sadness recognition was marginally significant when liner regression analysis was applied. Mother positive expressiveness in home setting and child's total accuracy in recognizing sadness had a correlation coefficient of -0.37; the child's total accuracy in recognizing anger and child's total accuracy in recognizing positive emotion had a correlation coefficient of 0.37.

Table 1. Descriptive statistics and bivariate correlation of study variables

	Mean	SD	1	2	3	4	5	6	7
1. Father Positive	0.15	0.18							
2. Mother Positive	0.25	0.26	0.05						
3. Father Negative	0.03	0.07	-0.05	-0.04					
4. Mother Negative	0.06	0.07	-0.12	-0.09	0.20				
5. Happy Total	8.02	1.52	-0.07	0.10	0.05	-0.08			
6. Sad Total	6.75	2.28	0.19	0.06	0.16	-0.37**	0.20		
7. Angry Total	5.30	1.58	0.01	0.08	-0.07	0.07	0.37**	0.15	
8. Child Sex	48%	--	-0.09	0.07	0.05	0.02	-0.08	-0.12	0.12

\*\*. Correlation is significant at the 0.01 level (2-tailed).

Boy was coded as 1; girl was coded as 0.

To address the first goal of this study, mothers' and fathers' positive and negative expressiveness was analyzed using paired samples t-test. Mothers and fathers differed in both positive and negative expressiveness. Compared to fathers, mothers expressed both positive emotions and negative emotions more frequently (Table 2). This suggests that in general mothers were more expressive than fathers.

Table 2. Paired t-test on parents' expressiveness in the home setting

	Mean	SD	SE	<i>t</i>	<i>p</i>
Father Positive-Mother Positive	-0.10	0.31	0.05	-2.19	0.03
Father Negative-Mother Negative	-0.03	0.09	0.01	-2.13	0.04

To examine whether children have the higher accuracy in recognizing positive emotion compared to negative emotions (sadness and anger), paired sample t-tests were utilized (Table 3). The paired t-test showed that children showed higher accuracy in recognizing positive emotion than the accuracy for recognizing sadness ( $t = 3.97$ ,  $p < 0.01$ ) and anger ( $t = 12.04$ ,  $p < 0.01$ ); in addition, accuracy of recognizing sadness was higher than that of anger ( $t = 4.38$ ,  $p < 0.01$ ).

Table 3. Paired-sample t-test on child's accuracy in recognizing emotions based on ACES.

Accuracy	Mean	SD	SE	<i>t</i>	<i>p</i>
Happy vs. Sad	1.27	2.47	0.32	3.97	0.00
Happy vs. Mad/Angry	2.72	1.75	0.23	12.04	0.00
Sad vs. Mad/Angry	1.45	2.57	0.33	4.38	0.00

To examine the prospective associations between parents' expressiveness and children's emotional recognition (the third goal), ordinary least squares regression analysis was conducted with mothers' and fathers' expressiveness in home environment as independent variables and the score of children emotion recognition in the lab setting as the dependent variable. Fathers'

negative expressiveness at the 0.1 level ( $\beta = 0.26$ ) and mothers' negative expressiveness at the 0.01 level ( $\beta = -0.47$ ) predicted child's total accuracy in recognizing sadness, even though child sex was not a significant predictor for child's total accuracy in sadness recognition (see Table 4).

Table 4. Regression analysis on child total accuracy in sadness recognition

	B	SE	$\beta$	<i>t</i>	<i>p</i>
Father Positive Expressiveness	1.72	1.71	0.14	1.00	0.32
Mother Positive Expressiveness	-0.03	1.20	0.00	-0.03	0.98
Father Negative Expressiveness	8.33	4.39	0.26	1.90	0.07
Mother Negative Expressiveness	-14.86	4.42	-0.47	-3.36	0.00
Child Sex	-0.46	0.61	-0.10	-0.76	0.46



Table 5. Regression analysis on child total accuracy in positive emotion recognition

	B	SE	B	<i>t</i>	<i>p</i>
Father Positive Expressiveness	-0.54	1.27	-0.07	-0.43	0.67
Mother Positive Expressiveness	0.51	0.89	0.09	0.57	0.57
Father Negative Expressiveness	1.03	3.24	0.05	0.32	0.75
Mother Negative Expressiveness	-0.57	3.26	-0.03	-0.17	0.86
Child sex	0.17	0.45	0.06	0.38	0.70

Table 6. Regression analysis on child total accuracy in anger recognition

	B	SE	$\beta$	<i>t</i>	<i>P</i>
Father Positive Expressiveness	0.20	1.44	0.02	0.14	0.89
Mother Positive Expressiveness	0.20	1.01	0.03	0.20	0.84
Father Negative Expressiveness	-2.01	3.69	-0.09	-0.55	0.59
Mother Negative Expressiveness	2.28	3.71	0.10	0.62	0.54
Child sex	0.32	0.51	0.10	0.63	0.53

### **Discussion**

This study examined the effect of both fathers' and mothers' family expressiveness on child's total accuracy in recognizing basic emotions including happy, sad, and angry. It also examined children's respective accuracy in sequence in recognizing three basic emotions. Differences between parents' expressiveness were investigated as well. It was hypothesized that parents' expressiveness and child gender will predict children's accuracy in emotion recognition. Additionally it was predicted that parents' expressiveness will be different in the way that compared to fathers mothers will be more expressive. It was also predicted that children will have highest accuracy in recognizing positive emotion. The hypotheses were partially supported; both fathers' and mothers' negative expressiveness was related to children's emotion recognition of sadness and mothers were generally more expressive in both negative and positive emotions compared to fathers. However, positive expressiveness from parents in home setting did not seem to be as effective at predicting children's accuracy in recognizing basic emotions and child sex did not seem to predict children's accuracy in recognizing emotions at all.

Compared to fathers, mothers were more expressive in both positive and negative emotions. This was an expected result. This result indicates the "gender division of emotion" that is females (mothers) are generally socialized to be expressive of their feelings to provide emotional support for the entire family whereas males (fathers) are assumed to be in charge as the bread-winners outside of family emotional life (Duncombe & Marsden 1993, p. 222). It is more interesting to note that the frequency and intensity of emotion expression is not the same as emotion itself. Fathers and mothers are different in intensity and frequency of emotion expression, but they can possibly feel exactly the same way internally.

In this study, children had highest accuracy in positive emotion recognition compared to sadness and anger recognition. This result was consistent with previous findings (e.g., Reichenbach & Masters, 1983, Denham & Couchoud, 1990). Izard (2007) has already offered an explanation for this phenomenon; negative emotions are less commonly expressed in social settings, particularly around children. Therefore, children have less exposure to negative emotions compared to positive emotion. Given that children's ability to understand emotion is associated with many optimal outcomes such as better peer relations and enhanced social competence as well as fewer internalizing and externalizing behavioral problems (Cassidy, Parke, Butkovsky & Braungart, 1992, Castro, Halberstadt, Lozada & Craig, 2015), both fathers and mothers should be encouraged to display both positive emotions and well-modulated negative emotions in home setting to better facilitate children's emotion understanding.

In previous research, it was highlighted that fathers' emotion socialization has salient impact on children (Foster, Reese-Weber, & Kahn, 2007). In this study, fathers' negative expressiveness in home setting predicted children's total accuracy in sadness recognition positively at marginally significant level. This finding indicates that fathers' expressiveness in home setting matters even when fathers are generally less expressive in their emotions compared to mothers.

The result was also partially consistent with previous finding that positive family expressiveness and children's emotion understanding were not related (e.g., Halberstadt et al., 2002). A divergence model indicates that children may benefit from developing more complex emotion schemas when parents differ in emotional expressiveness (McElwain et al., 2007).

The sample of this study was drawn from a larger longitudinal study, which included mothers who had depressive symptoms. Research has shown that sadness is one of the key

components in depression (Simon & Nath, 2004). Therefore, depressed mothers might have the tendency to display excessive negativity, especially sadness to children. Excessive negativity potentially can be harmful for children, because only parents' modeling of well-modulated negative emotions is conducive (Dunsmore & Halberstadt, 1997; Denman & Kochanoff, 2002; McClure, 2000). This also explains why in this study fathers' negative expressiveness predicted children's higher accuracy in sadness recognition whereas mothers' negative expressiveness predicted children's lower accuracy in sadness recognition. Fathers and depressed mothers' expressiveness in home setting might form a divergence model for children, because to some degree compared to mothers' excessive negativity, fathers' well-modulated negative expressiveness can provide children with a different level of negativity, and so that children can develop more complex emotion schemas, which can be helpful in children's sadness recognition. On the other hand, high level of negative emotion expression tends to cause distress in children and in this case their emotion development is likely to be hampered (Morris et al., 2007).

One limitation of the current study is that it had only 61 participants among whom there were only 45 fathers. This is in part because of the limited number of families who were willing to wear the recording device, and partly because in some families, resident fathers were not present during the audio recording day. Additionally, the participants of this study were highly educated and the sample had an overrepresentation of racially White parents/children. Information on father race, age and depressive symptoms was not collected, which further limited the demographic information that was available to control for.

Despite the limitations, the current study has several strengths. The main strength is that instead of relying on self-report family expressiveness questionnaire, family expressiveness was assessed using naturalistic observations, which eliminated the bias of participants' self-report. In

addition to the naturalistic observation method, this longitudinal study also emphasized the important role of fathers in the family dynamics by considering father expressiveness besides mothers' expressiveness.

Future studies could be focused on effects of family expressiveness on children's emotion knowledge specifically, considering the peer relations as the child outcome. Future research can also utilize a more diverse sample in which the distribution of race and social class can be more even. Contradicting to the common assumption, another direction for further investigation is to examine the contributive role of negative expressiveness in facilitating children's emotion understanding given that well-explained and well-modulated negative emotions can actually help children develop more complex emotion schemas in young ages. Finally, the mechanism by which children learn to recognize other basic emotions could be further investigated.

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